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Time : 1½ Hours**ELECTRONICS****(NSQF)****Subject Code**

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Total No. of Questions : 4**(Printed Pages : 8)****Maximum Marks : 40**

INSTRUCTIONS : (i) Answer each question on a fresh page.

(ii) Write the question and sub-question number clearly.

(iii) All questions are compulsory.

(iv) Figures to the right indicate full marks.

1. (A) Select and write the most appropriate alternative given below each statement and rewrite the complete statement : $\frac{1}{2} \times 6 = 3$

(1) The are used in motor protection using temperature sensors.

- Hybrid relays
- Thermal overload relays
- Electromagnetic relays
- Solid state relays

- (2) Fuse element is made up of material having
melting point.
- Medium
 - High
 - Low
 - Very high
- (3) In house wiring the insulation of red colour is used for
..... wire.
- Live
 - Neutral
 - Earth
 - Ground
- (4) Appliances are connected in in house wiring so
that all appliances have the equal voltages.
- Indirect
 - Direct
 - Series
 - Parallel
- (5) In India frequency of AC supply is Hz.
- 40
 - 50
 - 60
 - 70

(6) According to Fleming's left hand rule the direction of the current in motor is represented by..... finger.

- Fore finger
- Middle finger
- Thumb
- First finger

(B) Answer the following questions : 2×2=4

(a) Explain the procedure of earthing.

(b) Write any *four* stress relieving techniques.

(C) Define the following : 1×3=3

(i) Microwave oven

(ii) Sender in communication cycle

(iii) Visual communication

2. (A) (1) Compare the co-ordination in first pair and complete the second pair : $\frac{1}{2} \times 2 = 1$

(i) Earth wire : Green colour :: Neutral wire :

(ii) Voltage between line and neutral : 230 V :: Voltage between earth and neutral :

(2) Give single term for the following definition : $\frac{1}{2} \times 2 = 1$

(i) The region surrounding a magnet, in which the force of magnet can be detected.

(ii) Connecting the metal case of an appliance to the earth by using metal wire.

- (3) Match the following items in column 'A' with correct items in column 'B' and write the correct pair : $\frac{1}{2} \times 2 = 1$

Column A

Column B

- | | |
|---------------------------|-----------------------------------|
| (i) OLP switch | (a) Protect from low voltage |
| (ii) Speed control switch | (b) Reverse direction of current |
| | (c) Control speed of motor |
| | (d) Protect from overload current |

- (B) Answer the following questions : $2 \times 2 = 4$

- (a) Write any *two* advantages and disadvantages of brush DC motor.
- (b) State the procedure you will follow to check the continuity of a supply cord of a mixer grinder.

- (C) Answer the following questions in *one* line : $1 \times 3 = 3$

- (i) Why overload protectors are provided for mixer/grinder ?
- (ii) How is the speed of mixer/grinder is controlled ?
- (iii) What are the types of injuries that can happen while working with an electrical appliance ?

3. (A) Select and write the most appropriate alternative given below each statement and rewrite complete statement : $\frac{1}{2} \times 6 = 3$

(1) Large motors are used in propulsion of electric vehicles, elevator, and hoist and in drives for steel rolling mills.

- AC
- DC
- Universal
- Induction

(2) A DC motor converts current electrical energy into mechanical energy.

- Direct
- Indirect
- Alternating
- Synchronizing

(3) The motor are commonly used in portable power tools and many household appliances.

- AC
- DC
- Universal
- Induction

(4) In DC shunt motor current splits into armature winding and field winding hence current is

- Medium
- High
- Low
- Average

(5) The shortcut key for cut command is

- Ctrl + C
- Ctrl + V
- Ctrl + X
- Ctrl + Z

(6) Writing a letter is an example of communication.

- Verbal
- Non-verbal
- Visual
- Non-visual

(B) Answer the following questions : 2×2=4

(a) List the steps to be taken in case the OLP trips while the mixer is connected to the supply.

(b) Give any *four* factors on which timing of cooking in microwave oven depends.

(C) Attempt the following questions : 1×3=3

- (i) Write *one* point difference between kit-kat and cartridge fuse.
- (ii) What is the function of relay ?
- (iii) What are the extensions used for audio and image files ?

4. (A) (1) State whether the following statements are true or false : $\frac{1}{2} \times 2 = 1$

(i) Microwave radiation passes through surface of metal object

(ii) To exhaust the hot air to maintain the temperature of magnetron a stirrer fan is used in microwave oven.

(2) Give single term for the following : $\frac{1}{2} \times 2 = 1$

(i) The kitchen appliance that is used for heating and cooking food using radiation.

(ii) The part of microwave that rotates to ensure even cooking of food.

(3) Match the following items in column 'A' with correct items in column 'B' and write the correct pair : $\frac{1}{2} \times 2 = 1$

Column 'A'

Column 'B'

(i) Carry current to armature

(a) Commutator

(ii) Reverse current direction periodically

(b) Shaft

(c) Carbon brushes

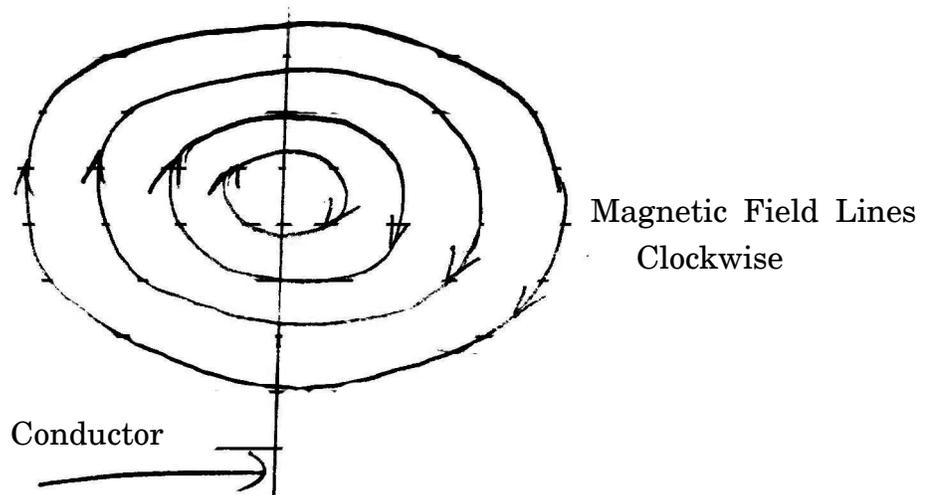
(d) Bearing

(B) Answer the following questions : 2×2=4

(a) Give any *four* solutions related to sustainable development.

(b) What are the important tasks performed by an Entrepreneur ?

(C) Carefully observe the given figure and answer the following questions : 1×3=3



(i) In which direction the current will flow ?

(ii) What will be the effect on magnitude of magnetic field if the current flowing through the conductor increases ?

(iii) What will be the effect on magnitude of magnetic field if the distance of the point from the conductor increases ?